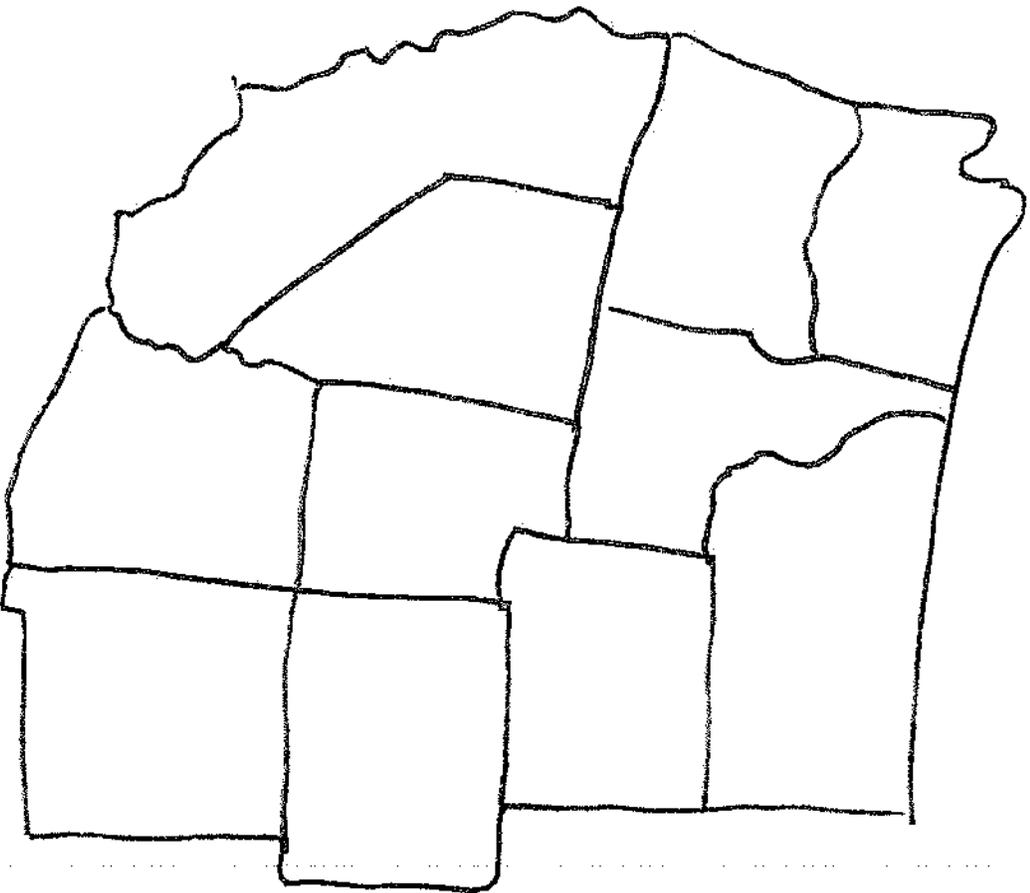


Where in the Western U.S. are American Pikas?

Animals have a geographical range or distribution where members of that species might be found.

Research the American pika's range. Label the states. Locate the items in the box, color and key accordingly on the map. On the lines, explain how climate change is affecting the pika population.



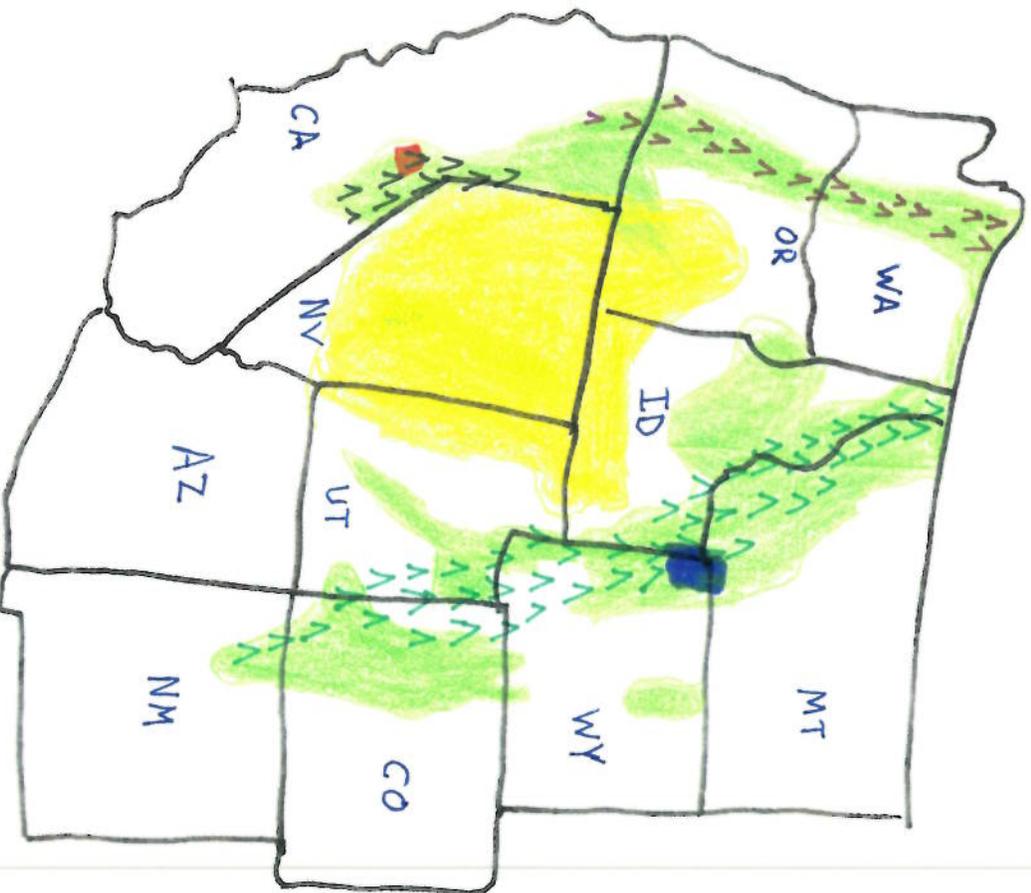
- Sierra Nevada Mountain Range
- Cascade Mountain Range
- Rocky Mountain Range
- Yosemite National Park
- Yellowstone National Park
- Great Basin Desert
- Range of Pika

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Pikas have a hard time with hot temperatures. They need snow and ice. Less snow in the winter means less insulation to keep them warm and less water for plants to grow that pikas eat.

It's Your Niche

Subject: Science

Objective: Students will be able to define habitat and niche and create business cards for particular animals.

Materials:

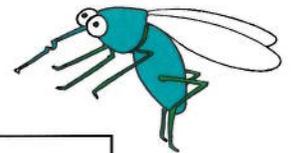
- 3" X 5" blank index cards or pieces of construction paper cut business card size
- writing and coloring materials
- animal books for researching

Procedure:

1. Review habitat with students. (food, water, shelter, and space in a suitable arrangement.) Tell students that habitat can be considered an animal's address. Explain to students that in this activity they will be not only be looking at animals' addresses, but animals' jobs, as well.
2. Talk about the student's neighborhood. Everyone has an address and most people have jobs. The job might be a role that person plays in the community. Animals have roles in the ecosystem, or community, that they live in. This role is called the animal's ecological niche. It includes such things as where and how the animal gathers its food; the animal's role in the food chain; what the animal gives and does for the community; the animal's habits, periods of activity, etc. It can also be described as what an animal does for a living.
3. Allow students time to choose and research a certain Idaho animal to find out its niche and choose one thing this animal does well.
4. Their assignment will be to create a business card for that animal advertising its job in the community. To help them, you may want to bring in a few "real" business cards to look at.
5. Here are a few samples of animal business cards:

Rick Raven
Environmental Cleanup
Unlicensed, Unbonded, Uninsured
Your trash is our treasure
Call 1-800-Wise-guy

Buzz Mosquito
Plasma Collector/blood sucker
123 Stick-It-To-You Lane
Everywhere, Idaho
We'll suck you drier than a vampire
Call 1-800-drink-blud



6. Business cards should include the following: name of animal, job title, company name, address, phone number, slogan and illustration or symbol for business (optional).
7. Hang business cards on your bulletin board and call it "Whose Niche?"

Winter Survival

Subject: Science

Objective: Students will be able to give four examples of behaviors animals use for winter survival.

Materials:

- 12" X 18" construction paper
- markers or colored pencils



Procedure:

1. Discuss with students the behaviors they take on when winter arrives. How do they handle the cold weather? In what activities do they participate? Does their behavior change from summer to winter? Share the poem, "Coping with Cold," (following page) with your students.
2. Discuss with the class the wildlife they see during the winter. Are there fewer animals to see? Does animal behavior change in any way? Why does the behavior change? How do winter animals make a living?
3. Introduce or review the different strategies animals use during the winter.
 - A. **Migrate:** Animals travel to another area where weather is warmer and food is more accessible.
 - B. **Adapt:** These animals make changes to behavior or to their bodies. For example, they may grow newer, thicker fur in the fall or change the coloring of their coats to blend in with their environment. Some animals gather food when it is available and store it for later. Other animals change their diet for the different seasons.
 - C. **Hibernate:** True hibernators are animals that go into a special deep sleep. Their body temperature drops, heartbeat and breathing slow down. They eat extra food in the fall and store it as body fat.
 - D. **Dormancy:** Cold-blooded animals like fish, frogs, snakes and turtles have no way to keep warm in the winter. This inactive period, or dormancy, is similar to hibernation.
4. Ask students to research more thoroughly winter survival techniques for different animals. Give each student a 12" X 18" piece of construction paper. Instruct them to fold the paper into fourths. They should then draw lines on the folds and label each box. Use the following labels: Migrate, Hibernate/Dormancy, Adapt and My Preference. For the Migrate, Hibernate/Dormancy, and Adapt boxes, students should give an explanation of the technique and give at least three examples of animals that use the particular technique. They should then illustrate one of the animals demonstrating that behavior.
5. For the fourth box, My Preference, students should tell which technique they would prefer if they were an animal surviving the winter.

Coping with Cold

By Shelley Cooke, Idaho Dept. of Fish and Game

When winter approaches and cold weather draws near
what happens to the animals this time of year?

Can they put on a jacket to keep themselves warm,
or stay snuggled in bed during a harsh winter storm?

Perhaps take a trip to the place of their choice,
to a beach in the tropics to relax and rejoice?

If people can do it, can animals too?
Let's take a quick look and see if they do.

Early in the fall as the days start getting short,
I hear quacking and honking, creating a ruckus of sorts.

I look to the sky, for what could it be?
A flock of geese flying south in the shape of a V.

I see a squirrel in the treetop, some nuts in his cheeks,
to store for the winter in the upcoming weeks.

He'll take them and hide them in some secret space,
and when he gets hungry, he'll search for that place.

The animals of the mountains, like the wolf, elk and goat,
all grow extra fur for a thick winter's coat.

Then, in the springtime, they'll shed that thick pelt,
about the same time the snow starts to melt.

I believe there is a rabbit who is known as a hare
that during the winter changes the color he wears.

Most of the year, he is dark, head to toe
but turns white during the winter, to blend in with the snow.

The frogs and the turtles that live in the lakes,
sleep buried in mud until spring, when they wake.

They breathe through their skin, which keeps them alive.
When the water warms up, they begin to revive.

I've heard that the bear will retreat to a den,
to sleep all winter through, no matter how long it's been.

He prepares in the fall by eating more than his share,
then emerges in springtime, looking no worse for wear.

Moles and chipmunks, and some kinds of mice,
will stay inside when it's cold and roam around when it's nice.

They will huddle together in a tight little ball,
and hide in the homes they built in the fall.

People and animals are alike in some ways.
We all have a plan to survive cold winter days.

Some sleep, some snuggle, some fly south on their wings,
but all that really matters is we survive until spring!

Who Fits Here?

Objectives

Students will: 1) identify characteristic life forms in ecosystems; 2) describe the importance of adaptations in animals; and 3) generalize that each ecosystem has characteristic life forms adapted to live there.

Method

Students play an identification game using posters and cards.

Materials

Posterboard for ten posters; crayons, paints or magazine photos for posters; poster board, index cards or construction paper for 50 adaptation cards

Background

Each environment is suitable to those life forms that have adapted to its climate, soils, water, vegetation and other life forms and to other ecological factors over a number of years. Plants and

animals tolerant of heat and little moisture are adapted to the desert; mountain goats to craggy hillsides and cold temperatures; and polar bears to ice fields and snowy vistas.

In this activity, students will research particular environments to discover characteristic life forms and then match those animals' adaptations back to the appropriate environment.

The major purpose of this activity is for students to recognize that each environment has characteristic life forms adapted to live there.

Procedure

1. Divide the class into two equal groups. Explain that each group will make a game for the other. The object of the game will be to match animals to the environment in which they live.
2. Ask each half of the class to choose five ecosystems they would like to know more about (e.g., desert, hardwood forest, coniferous forest, alpine, marine). Divide each half of the class into the five groups, one per ecosystem. Have each group research their ecosystem, learning its characteristic life forms, including adaptations of the animals that enable them to survive in that environment.
3. Ask each student group to make a poster showing the characteristic vegetation, terrain, etc., in the ecosystem they are studying. Posters of each ecosystem can be made with crayons and paints or magazine cut-outs.

Grade Level: 5-8

Subject Areas: Science, Environmental Education

Duration: two 45-minute periods or longer

Group Size: 10 to 30 students; fewer or more with adaptation of activity

Setting: indoors

Conceptual Framework Topic Reference: HNIB

Key Terms: adaptation, ecosystem, habitat

Appendices: Local Resources, Ecosystem

4. For each ecosystem, students should make five cards, one per each of five species of animals characteristic of the ecosystem. Put a description of the animal's adaptations to its environment on one side of the card and a coding number on the other side, so that the animal described can be identified later. Do not write the name of the animal on the card. The cards should describe adaptations that enable the animals to survive in the ecosystem. For example, for the desert environment, the five cards could read:
 - "Hunts at night for warm rodents and sleeping birds; can climb loose, sloping sand by throwing loops of its body up like coils" (sidewinder rattlesnake)
 - "Relies on agility and speed to escape predators; needs little water; gets water from plants it eats" (cottontail rabbit)
 - "Hunts at night; lives in burrows of animals like gophers." (burrowing owl)
 - "A bird that hibernates in winter to avoid desert cold" (nightjar)
 - "Larvae feed on yucca flowers." (yucca moth)
5. When posters are made and cards completed, students in each half of the class should make a master list of the five ecosystems and animals their cards represent. Next, they shuffle all their cards for their five ecosystems into one pile.
6. Each half of the class then exchanges posters and cards with the other half.
7. Each half of the class then tries as a group to decide to which ecosystem each card belongs.
8. Next, give each half of the class the master list for their posters. One student per group can read off the animals that correspond with each card for each poster.
9. Has each animal been placed in its proper ecosystem? If not, why? Were there any animals found in more than one ecosystem? Are these ecosystems varied? How can some animals live in more than one ecosystem, and

not others? What are similarities and differences among the ecosystems and characteristic life forms? What are some of the most interesting animal adaptations? What functions do these adaptations serve? How do they relate to the nature of the physical environment? Ask the students what characterizes animals and the environments in which they live. (Each environment has characteristic life forms. These animals and plants are adapted to live where they do.)

Extensions

1. Look for rare, threatened and endangered species in each ecosystem. Are there any? If not, why not? If yes, why? (usually habitat loss) See the Project WILD activity "Here Today, Gone Tomorrow."
2. Compare and contrast additional ecosystems and life forms from a variety of places on the planet.
3. Make an Ecosystem Quiz Show. Research the ecosystems, life forms and adaptations—and then use a game show format to guess the animal and its environment.

Aquatic Extension

Do this activity again using only aquatic ecosystems—for example, pond, lake, stream, estuary, marsh, ocean, river.

Evaluation

1. Pick any three animals. Describe the ecosystem in which each animal lives, including identification of the animal's habitat requirements.
2. Describe the importance of adaptation in animals.
3. Design an activity or simulation for younger students that teaches how wildlife is adapted for different ecosystems. This extension could be done in the form of a game. Have the younger people do the activity. Find out what the younger students learned.